Abstract Submitted
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EAST First Plasma – Design, Simulation & Experimental Results[1] J.A. LEUER, D.A. HUMPHREYS, A.W. HYATT, G.L. JACKSON, R.D. JOHNSON, B.G. PENAFLOR, D.A. PIGLOWSKI, M.L. WALKER, A.S. WELANDER, General Atomics, D. MUELLER, PPPL, B.J. XIAO, Q.P. YUAN, H.Z. WANG, ASIPP, EAST TEAM — First plasma was achieved in EAST, the world's first highly-shaped fully superconducting tokamak, in Sept. 2006 [1]. We describe the design of the first plasma scenario and present results of the first plasma campaign in which this scenario was used successfully. Tools and methods used to optimize the breakdown and initial plasma current ramp follow previous analyses performed for ITER [2]. Testing of the EAST plasma control system (PCS) real-time software against simulations was crucial in designing the scenario. Open loop, resistor-based startup followed by PF current control produced 220 kA plasma current in a circular limiter configuration, with feedback control of plasma current and radial and vertical position. These modeling and design methods are expected to be important to future devices like KSTAR and ITER.
[1] B. Wan, et al., Plasma Sci. & Tech. **9**, 125 (2007).
[2] J.A. Leuer, et al., Proc 15th IEEE Symp. on Fusion Eng. (1993) p. 629.

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